
Space Weather Forecast

Issued on Saturday, 31 August 2024 at 12:10 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales <https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales>

Space Weather Forecast Headline: Moderate-class flares expected, slight chance of Strong flares.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Activity has been Moderate with the peak flare at 30/1220 UTC from a large region in the southeast. There are now thirteen sunspot regions on the disc, with two new regions appearing on the east limb. The largest region has seen the ongoing emergence of small peripheral spots along with increasing areal extent, perhaps partly due to more detail becoming apparent as the region moves towards a clearer viewing angle. A region near south centre disc continues to mature into a simple magnetic structure after its rapid growth yesterday. The regions emerging over the limb are not yet fully visible, so the analysis will change, but one of them may be a region which was large and complex on the previous rotation. All other regions are relatively simple and stable at the present time.

A filament eruption around 30/2330 UTC is currently being assessed for any Earth directed component. Otherwise, no Earth directed Coronal Mass Ejections (CMEs) have been observed.

Solar Wind / Geomagnetic Activity: The solar winds showed waning CME and/or weak fast wind influence. Wind speeds varied from 330-420km/s. The Interplanetary Magnetic Field was initially moderate, gradually and erratically easing to become weak to moderate. The north-south component was moderately negative for much of the period, switching to become weakly positive at 31/0550 UTC. Geomagnetic activity was Active to G1/Minor Storm (Kp 4-5) for most of the period, dropping to become Quiet (Kp 2) after 31/0900 UTC.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remained at background levels with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Moderate activity is expected with a slight chance of isolated Strong flares. The main flare risk is currently from the large sunspot region in the southeast or perhaps the new region(s) on the east limb.

Solar Wind /Geomagnetic Activity: There are no Earth-directed CMEs currently expected. The recent enhancement is gradually easing, but further minor geomagnetic activity is possible on Day 1 (31 Aug). The next enhancement is expected on Days 2 or 3 (01-02 Sep) from a narrow central disc coronal hole. A significant enhancement is unlikely, however.

Mainly Quiet to Unsettled activity is expected, with Active intervals possible on Day 1 under weak fast wind or transient influence, then again on Days 2 or 3 with further fast wind enhancement possible.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is expected to remain at background levels, with just a slight chance of exceeding the S1/Minor Radiation Storm threshold.

Geomagnetic Storms:

Geo-Magnetic Storm	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Minor or Moderate	G1 to G2	Yes	5	5	5	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability			(%)	(%)	(%)	(%)
Active	R1-R2 M Class	Yes	75	75	75	75
Very Active	R3 to R5 X	No	15	15	15	15

Solar Radiation Storms - (High Energy Protons):

Radiation Storms	Level (cm ⁻² sr ⁻¹ s ⁻¹)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Active	≥ S1	No	5	5	5	10
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = cm⁻²sr⁻¹s⁻¹)